PROFIT ON NATIONAL BANK NOTES

Profits from Issues of Notes under the Aldrich-Vreeland Act

Before the Aldrich-Vreeland Act was passed, it was generally assumed that such exceptional gain as might result from the issue of bank notes based on bonds would be offset by the high price at which government bonds must be purchased. There has consequently been little interest in the question, although a better understanding of it would have led to a clearer insight into the business significance of notes secured by United States bonds.

But there is a peculiar contradiction between current economic monetary theory and the assumptions upon which the Aldrich-Vreeland Act was passed. A five per cent, six per cent or seven per cent tax on the Aldrich-Vreeland Act notes need not retire them if a given amount of lawful money in bank supports several times its amount in loans and deposits for the issuing bank.

It is currently assumed that a bank does not lend its deposits and that a reserve of lawful money will support deposits equal to from four to six times its total amount. It seems to be further assumed that these credit deposits are, in fact, loans left on deposit. There is then presumed to be a general offsetting of checks drawn against these deposits. The conclusion has, therefore, generally been deduced that reserves of lawful money left on deposit will support loans and deposits equal to several times the amount so deposited. If this were true, it should follow that any credit instruments, such as bank notes, which may be passed over the counter instead of reserve money, thus indirectly increasing reserves by the amount so used, would increase the lending power of the issuing banks by several times the amount of notes thus used. If $100,000 of Aldrich-Vreeland notes bearing a tax of 5 per cent will support $400,000 of deposits indirectly through saving $100,000 of lawful money, they should cause an increase in loans equal to several times the amount of the issue. If interest rates are 5 per cent it would, therefore, appear profitable to issue the notes unless the tax should reach the large amount of 20 to 30 per cent. But the banks do not seem to see the profit. Are the banks wrong? Or is there an error in the current theory of banking operations?

In its final analysis, the difficulty seems to lie in the false as-

sumption made by economists that the banks do not lend their deposits. Of course, a bank does not lend its deposits in the sense that the deposit account becomes smaller after the loan is made. But loans are not left on deposit with the lending bank in the manner ordinarily assumed. While borowers usually maintain a deposit account with the bank, if they are regular customers, the loan usually involves a withdrawal approximately equal to the loan. The withdrawal is somewhat delayed by the use of checks, but bankers estimate that these delays cannot be figured as very significant in lessening the total withdrawal following a loan. As indicated later, the bankers seem to underestimate the significance of this phase of the loan, but the economists have grossly overestimated it. The amount of loans left on deposit with the lending bank seems to have been assumed to underlie the high ratio of loans and deposits to reserve money.

This high ratio of loans and deposits to reserves might, indeed, exist in the absence of the use of checks or bank notes. If a depositor *A* placed $100,000 of lawful money with bank A, $75,000 of this money might be loaned and $25,000 retained as reserve against the $100,000 of deposits. The amount might be either checked out soon after the loan was made or taken out at once. Assuming that the loan were made on a ninety-day note, the funds withdrawn would, in the meantime, be used as means of payment by the borrower; and the creditors of the borrower would deposit the $75,000, or a large part of it, with Banks B, C, and D. Thus deposits in the banking system as a whole would be increased by approximately the amount of the loan. These additional deposits do not rest largely in the lending bank. The $75,000 of funds thus redeposited might again be loaned, with the exception of the amount required for reserve, and again redeposited, each time increasing deposits in the banking system as a whole by approximately the amount of the loans. Within the ninety days the operation might occur several times, so that $100,000 might, by its repeated use, serve in running up both loans and deposits four to eight times the amount of funds involved in the original deposit. On April 28, 1909, individual deposits for all the banks in the country amounted to $13,814,500,000. Loans and discounts were $9,924,800,000, whereas specie and currency in bank amounted to only $1,429,900,000. For the national banks, individual de-

posits were $4,635,200,000; loans, $4,662,000,000; and cash in bank only $926,100,000. For the banks as a whole, the total individual deposits equal 9.6 times the lawful money in bank, while for the national banks the individual deposits equal 5 times the lawful money in bank.

For the banking system as a whole, it is perfectly correct to say that the lawful money reserve limits deposits and similarly limits loans because, for the whole banking system, loans give rise to deposits, causing concurrent increase in the two items. This analysis does not hold, however, for the individual bank. It is not able to lend four times the amount of funds deposited with it even if it could readily convert into lawful money all the funds deposited. A check payable through the clearing house serves, as deposit, practically the same purpose that would be served by a similar amount of lawful money.

Whether or not deposits consist largely of loans was a question of controversy between Professor W. C. Webster and Bank Commissioner A. M. Young of Oklahoma in a series of articles appearing in the "Journal of Political Economy," Vol. XVII. In regard to Professor Webster's arguments, Commissioner Young says:

"Yet again Mr. Webster says that most people overlook the fact that 85 to 90 per cent of all bank deposits are created by loan. I am glad that he made this statement. It will at least show the intelligent banker of America how absolutely ignorant he is of the banking business. Men do not borrow money to keep it on deposit. The records of this office will show that not 25 per cent of our deposits are created in this way." (Journal of Political Economy, Vol. 17, p. 464.)

Professor Webster replies:

"Mr. Young is evidently seeking in vain for a climax to his caustic criticism of my recent article, when he says that my statement that 85 to 90 per cent of all bank deposits are created by loans shows 'the intelligent bankers of America how absolutely ignorant,' I am 'of the banking business.' This is really amusing. I will simply retort that I am quite willing to risk the doom of being consigned to the oblivion of ignorance by the above assertion." (Journal of Political Economy, Vol. 17, p. 468.)

It is clear that the bank commissioner was correct in so far as

an analysis of the operation of the individual banks is concerned. If Professor Webster meant that his statement should be applied to the account of an individual bank he would have been unable, upon the assumption made, to explain properly the profits of bank note issue.

If we neglect for the moment the small amount of deposits consisting of loans not withdrawn, a bank's lending resources are mainly increased from day to day by an increase in total deposits. It makes little difference whether these deposits consist of checks or other funds which are readily turned into reserves at the end of the day. The checks likewise serve, as deposits, the same purpose in offsetting the day's check withdrawals that would have been served by lawful money. In so far as loans result in the withdrawal of the funds borrowed, their increase from day to day will be definitely limited by the checks and other cash deposited, if the bank be conceived as regularly using all its available cash resources in making loans.

Loans and investments must be so limited, however, that there will always be present the lawful reserve against deposits. For the central reserve city only, approximately three fourths of the total cash deposited may be loaned or invested, on account of the reserve requirement. If, however, the cash in hand is the bank's own issue of bank notes, $100,000 of notes will be sufficient to support $100,000 of loans, assuming the loans to be, at the same time, withdrawals of the bank's funds. With a clear conception of the accounting operations of the individual bank, it becomes clear why bank notes will not, for the issuing bank, expand loans, through economy in reserves, by several times the amount issued. The treatment of bank notes in monetary theory presents many peculiarities. It is common to find, in a theoretical study, statements that bank notes are like checks and have no other effect on the supply of money than checks have. Even the American Bankers Association, at its meeting over a year ago, recommended that there be placed no limit on the issue of bank notes by the Reserve Association of America, assuming that there would be no resulting inflation because bank notes are like checks and are used only where they are required to carry on business at the current level of prices determined presumably by the cost of production of gold. While there may be a grain of truth in the similarity of bank notes and checks, their real significance lies in the difference

between the two. Bank notes serve and take the place of lawful money for the customers of the bank for whom checks will not serve. They thereby indirectly increase the reserves of the banks by approximately the amount of notes passed over the counter of the bank. At the same time they increase the lending power of the issuing bank by something more than the amount so used.

There results, however, an inflation in the aggregate lending power of all the banks equal to several times the amount of notes issued. As an operating process, it is through the redeposit of the funds created by issues of bank notes that they increase the lending resources of the banking system as a whole beyond the increase in the lending power of the issuing bank. The increase in lending power above the loan expansion for the issuing bank takes the form, first, of an increase in the deposits of the other banks and thereby an increase in their lending power. Other things being equal, an increase of deposits of a central reserve city bank will increase its lending power by slightly more than 75 per cent of these deposits. With a given reserve requirement, an increase in the total deposits of all the banks tends to increase the aggregate lending power of the banks as a whole. The theories have gone wrong because they have traced the increased lending power to increased reserves rather than to increased deposits. The increased reserves may be a secondary result of the retention by individual banks of the usual per cent of a larger amount of funds deposited with them.

If the difference between checks and bank notes be noted, it is then worth while to observe their similarity. Checks take the place of lawful money in the circulation, just as bank notes do, except that the use of the two credit media is not fully interchangeable. People without a bank account are usually inconvenienced by check payment. They must have currency. Lawful money would be required if bank notes were not present. But as banks become more thoroughly distributed over the country and a larger per cent of total payments may be made with checks, a given inflation in the amount of lawful money in the country will cause a larger inflation in the lending resources of the banks. The lawful money now in circulation will find lodgment in bank reserves. But there will always be a large number of payments that must be made by currency, and bank notes may serve this purpose and thus increase the lending power of the issuing bank by slightly more

than the amount of notes issued, while at the same time the lending power of all the banks will be increased by several times the amount of notes so issued.

It may be noted at this point that while the business habits of the community in regard to the use of banking facilities are such as to limit the usefulness of checks at any given time, so do they also limit the use of bank notes. The difference, however, is that generally acceptable money is displaced by checks as banking facilities become more widely used, while bank notes may at any time displace greenbacks, gold certificates, silver certificates and other forms of currency, of denominations of $5 or more. The following table will show the extent to which other forms of currency are in circulation outside of banks, and may be subject to displacement by bank notes:

Paper Money Circulated

	In Circulation[a]	In Banks[b]	Outside of Banks
U. S. Notes	$338,450,395	$236,080,193	$102,390,202
Gold Certificates	802,754,199	468,728,950	334,025,249
Silver "	478,597,238	178,042,978	300,534,260
Bank Notes	683,659,535	[c]108,652,478	575,007,507

[a] See *Report of the Secretary of the Treasury, 1910,* p. 142.

[b] See *Report of the Comptroller of the Currency, 1910,* p. 57, covering 7,145 national banks and 15,950 state banks.

[c] Only $41,743,931 of this amount was in national banks.

If bank notes were expanded in volume, and the United States notes, gold certificates, silver certificates, and other forms of currency subject to displacement through issues of bank notes were to find lodgment in reserves, the total issue might reach approximately $1,200,000,000 equalling the amount which the Aldrich plan provides may be issued by the Reserve Association of America before a 5 per cent tax is levied on increases in notes outstanding. It is of consequence to note that much of this expansion in notes could take place whether these notes were made reserve money or not. Total reserves would be increased, however, by between $100,000,000 and $200,000,000 through authorizing banks to count bank notes as reserve, because something like this amount is regularly held as assets in the banks and the notes so held could then count as reserves.

But the loan credit relation certainly has a significance for the individual bank in connection with the deposit relation. Through

the loan accommodation a bank may get a deposit account which it would not otherwise secure. It is also not true that a loan is followed immediately by a withdrawal of cash equal in amount to the loan. It is possibly true that individual loans may, on an average, constitute deposits to an amount equal to from 10 to 15 per cent of the total of these loans. If all loans were of the "cash credit" variety, which is common in Scotland, the gross income from interest on loans would probably be reduced by 10 to 15 per cent, rates of interest remaining unchanged. Another material consideration is found in the delay of withdrawals by borrowers through the use of checks. This delay results in the retention by the individual bank of a considerable fraction of total loans, which might otherwise be immediately withdrawn. For the sake of concreteness of argument let us assume that loans, are on an average, followed by withdrawals equal to 75 per cent of the loan. If we further assume for the moment that a bank is able to make full use of its notes when they are issued, $100,000 of notes would support $133,333 of loans.[1]

If the rate of interest were 5 per cent, this amount of loans would yield a monthly gross income of $555.55. The annual expense in connection with taking out $100,000 of notes (aside from the tax and sinking fund expense) has been figured by the Comptroller of the Currency as $62.50 or $5.20 per month. If this figure be correct, the net would be $550.35 per month. Under the Aldrich-Vreeland Act, the tax for the first month would be 5 per cent or $417 per month, making the total net income $133 per

[1] No account is here taken of the reserve required to support the credit deposit, which may be left with the lending bank, to the amount of, perhaps, 10 to 15 per cent of the average amount of its loans. This might amount to decreasing the loanable resources of the individual bank from 3½ to 5 per cent below 133⅓ per cent of the currency received through note issues, making the total increase of loans slightly below 126.55 to 128.55 per cent of the total increase in currency, as this reserve money required would reduce loans something more than its amount. For an accurate computation this small correction would necessarily be made throughout the paper. For the individual bank, however, it has less significance than it is ordinarily assumed to have in the discussion of the monetary theorist. The figures and per cents are only illustrative. It is not intended to argue that all of the currency issued by an individual bank finds its way back into other banks as deposits. Part of it may remain in the circulation. But the tendency is, through the circulation of these funds, to run up total deposits and total loans in all the banks by an amount equal to several times the increase in the circulation.

month. For each increase of one per cent in the tax, the expense would increase by $83.33, so that at the beginning of the third month the tax would become prohibitive by an increase of the expense above the gross income. A bank does not redeem its circulation, on an average, so often as once per year, and consequently the expense of taking out and redeeming the Aldrich-Vreeland circulation would probably be somewhat higher and the profits of the first and second month somewhat smaller than indicated here.

The assumption made above that notes can be immediately put into use is not accurately true. The table on the following page shows the extent to which bank notes are held as assets in the United States for the dates indicated.

Although the above figures show the extent to which bank notes are an expense to the banking system as a whole, by reason of their non-reserve character or by reason of the fact that they are not constantly kept in circulation, they do not signify greatly for the purposes of the calculation of a given bank. The individual bank has approximately the same amount of bank notes on hand regardless of whether or not it has issued notes of its own. The notes coming in as deposits are many times greater in volume than the bank notes which any one bank issues. Consequently a small bank would not find it particularly advantageous to undertake to make room for its own notes by trying to redeem the notes of other banks. The large central reserve city bank can afford this, but the small bank can not. This appears from the table above. The means employed by the small bank to get its notes into circulation are merely the retention of lawful money deposited and the passage of bank notes over the counter.

It is of further importance to note in this connection that our system of redemption adds further to the expense incurred because the notes must be sent to the redemption agency at Washington in order to secure their redemption in lawful money. The redeeming bank must forego the use of the funds in transit during the week or two weeks elapsing between the time of shipping and the time of receiving the redemption money. When the transportation charges are added to this loss, it may be seen why the individual bank does not regularly redeem the notes of other banks, which it may hold.[2] But there is another phase of the interbank relations

[2] One of the large banks in Chicago, with deposits of over $100,000,000, has regularly about $200,000 of notes in transit to or from Washington. It must pay the transportation expense and forego the use of this amount of funds.

TABLE No. 1.

Money in Banks compared with Bills of other National Banks held as Assets.
(000 omitted).

	NEW YORK			CHICAGO		
	Vault Money	Bills of other Banks	Per Cent	Vault Money	Bills of other Banks	Per Cent
1910						
Jan. 31.....	$285,017	$1,387	.5	$79,467	$761	.9
Mar. 29.....	274,435	1,519	.5	82,926	926	1.1
June 30.....	261,935	1,290	.5	85,212	1,189	1.3
Sept. 1.....	298,191	1,198	.4	85,269	1,068	1.2
1909						
Feb. 1.....	300,723	2,277	.7	82,899	1,318	1.5
Apr. 28.....	307,272	2,110	.7	83,542	1,296	1.5
June 23.....	329,981	2,111	.6	84,622	1,555	1.8
Sept. 1.....	308,955	1,669	.5	80,372	1,513	1.8
Nov. 16.....	257,257	1,835	.7	78,735	1,610	2.0
1908						
Feb. 14.....	260,527	1,979	.8	60,868	1,201	1.7
May 14.....	320,188	2,079	.6	73,028	1,363	1.8
July 15.....	316,978	1,905	.6	75,185	1,442	1.9
Sept. 23.....	338,578	1,357	.4	73,555	1,743	2.3
Nov. 27.....	312,856	1,944	.6	72,595	1,182	1.6
1907						
Jan. 26.....	228,979	1,529	.7	65,454	756	1.1
Mar. 22.....	209,927	1,091	.5	58,501	739	1.2
May 20.....	232,069	1,255	.5	65,770	766	1.1
Aug. 22.....	221,088	2,225	1.0	67,084	891	1.3

	ST. LOUIS			UNITED STATES		
	Vault Money	Bills of other Banks	Per Cent	Vault Money	Bills of other Banks	Per Cent
1910						
Jan. 31.....	$31,191	430	1.3	$873,408	$40,329	4.6
Mar. 29.....	30,008	405	1.3	878,957	44,062	5.0
June 30.....	30,675	471	1.5	876,640	41,743	4.8
Sept. 1.....	27,788	285	1.0	851,685	41,548	4.8
1909						
Feb. 1.....	33,354	797	2.4	900,567	40,450	4.5
Apr. 28.....	34,446	547	1.6	924,070	45,413	4.9
June 23.....	32,286	752	2.3	929,730	43,815	4.7
Sept. 1.....	32,095	648	2.0	894,296	40,204	4.5
Nov. 16.....	32,931	472	1.5	844,924	40,063	4.7
1908						
Feb. 14.....	29,229	756	2.6	826,389	37,994	4.6
May 14.....	29,182	546	1.8	898,639	37,313	4.2
July 15.....	25,401	593	2.3	886,499	37,481	4.2
Sept. 23.....	26,334	485	1.8	906,486	38,062	4.2
Nov. 27.....	29,151	597	2.0	882,664	37,905	4.3
1907						
Jan. 26.....	31,385	528	1.7	724,179	28,676	3.9
Mar. 22.....	28,056	311	1.1	683,983	27,763	4.1
May 20.....	29,861	390	1.3	719,691	28,100	3.9
Aug. 22.....	27,151	324	1.1	732,863	31,240	4.2

which counts in this connection. The small bank having a correspondent in a reserve or central reserve city can get rid of its redundant or worn-out notes by sending them to the city correspondent where the deposit will draw 2 per cent interest. If the reserve city bank has a deposit with the central reserve city bank, it can likewise dispose of its redundant or worn-out notes by shipping them to the central reserve city bank where they will count in the form of deposits, as reserve for the depositing bank, and yield 2 per cent interest. Consequently, the burden of redemption falls upon a few large reserve and central reserve cities. In the year ending October 31, 1910, the total of notes redeemed was $504,-151,186, of which $104,991,200 were fit for circulation and hence were returned to the issuing banks. Of this total, $230,886,000 came from New York City, $68,051,000 from Chicago, and $32,-464,500 came from the following eight cities: New York, Chicago, Boston, Philadelphia, St. Louis, Cincinnati, Baltimore, and New Orleans. The conclusion is evident that the alternatives of the small bank make it unprofitable for it to incur the expense incident to redemption. The large city finds itself a dumping ground for worn-out or redundant bank notes. If it did not send these notes to Washington, its reserves would become burdened with this volume of bank notes. It would also be passing out to its customers the dirty rags, as they are called, which the country banks have forwarded to their correspondent. While the large city banks get even, to some extent, when the country bank calls for currency in the fall of the year, it is only a few months before the return flow of these notes begins.

In this process of redemption the individual banks do not have their own notes retired except by their own consent. If the notes sent for redemption are worn out, the redemption is accomplished by the use of the 5 per cent redemption fund; and while the issuing bank whose notes are redeemed must replenish its 5 per cent fund by the amount of the redemption, it receives in a few days new notes for those redeemed. If it wishes to retire its own notes, it may do so by placing with the Comptroller of the Currency lawful money equal in amount to the notes to be retired. It may then withdraw the bonds. But as long as the bonds remain on deposit, the redemption process amounts only to a shift in the position of the notes. The issuing bank loses the use of the amount redeemed during the time elapsing between its replenishing of

the 5 per cent fund and the re-employment of its own notes reissued by the Comptroller. This expense should be roughly proportional to the amount of notes a bank has outstanding. It is not regarded as an item of significant expense by the issuing banks.

But a bank can seldom calculate that it will be able to make full use of all its funds at all times. All banks, for part of the year, have surplus reserves. The excess per cent of reserves above

TABLE No. 2.

Legal and Available Reserves

	Reserve of Central Reserve City Banks	Reserve of Reserve City Banks		Reserve of Country Banks	
	Legal	Legal	Available	Legal	Available
1910	Per cent	Per cent	Per cent[1]	Per cent[1]	Per cent[1]
Sept. 1	25.68	25.31	28.04	16.88	22.81
June 30	24.96	25.30	27.25	17.07	22.57
Mar. 29	24.92	25.27	27.92	16.96	23.83
Jan. 31	25.88	25.53	28.00	16.97	23.94
1909					
Nov. 16	25.19	25.56	27.60	17.00	23.95
Sept. 1	25.44	25.65	29.05	17.08	24.58
June 23	26.82	26.28	30.15	17.34	25.09
Apr. 28	25.76	26.96	30.73	17.63	25.92
Feb. 5	25.73	27.14	31.94	17.52	26.57
1908					
Sept. 23	25.98	26.44	30.76	17.63	26.07
Nov. 27	27.80	26.80	[2]	17.60	[2]
July 15	27.85	27.60		17.92	
May 14	29.70	27.87		18.40	
Feb. 14	28.62	27.37		18.75	
1907					
Dec. 3	22.20	24.72		19.17	
Aug. 22	26.20	25.50		16.90	
May 20	26.50	24.90		16.60	
Mar. 22	25.30	24.30		16.70	
Jan. 26	26.70	25.60		16.60	
1906					
Nov. 12	25.3	24.3		16.8	
Sept. 4	24.4	24.5		16.7	
June 18	26.0	25.4		16.8	
Apr. 6	24.6	24.7		17.1	
Jan. 29	26.5	25.7		17.0	

[1] Available reserves include the lawful reserve, and in addition the deposits with reserve agent in excess of that which may be counted as lawful reserve.

[2] There was no calculation of the available per cent of reserve prior to November 27, 1908.

required reserves is a useful indication of how fully the banks employ their funds. The per cents over the past few years are given on previous page.

These figures, showing the extent to which the banks are able to make use of their resources, are important as showing the significance to banks of loanable funds or of additions to their loanable cash resources. During recent years the percentage of idle funds has been small. The figures on available reserve as compared with lawful reserve are significant because the difference is the total of country and reserve city bank deposits with their reserve agents above the amount which the law allows them to count as reserves. This difference has a bearing on the explanation of the profits from the issue of bank notes based on United States bonds, as shown below. In so far as the figures above bear on the profits to be secured from the issue of Aldrich-Vreeland bank notes, they show that the correction to the profit figures, because of the nonemployment of funds, is a small item, and, for the period of a panic when such notes would be issued, the correction can be practically neglected.

Profits from Issues of Bond Secured Notes

The explanation of the profits from the issue of national bank notes based on United States bonds is somewhat more complex, but the same theoretical analysis applies. The Comptroller of the Currency gave, in the annual report of 1910, the following figures in regard to the profits from an issue of $100,000 of bank notes based on Panama 2 per cent bonds of 1930:

Receipts		Deductions	
Interest on $100,000 of 2s of 1930	$2,000.00	Tax	$500.00
" on $100,000 circulation at 6%.	6,000.00	[1]Expenses	62.50
		Sinking Fund	27.58
Gross receipts	$8,000.00	Total	$590.08
Net receipts			$7,409.92
Interest at 6% on $101,005, the average cost of $100,000 of 2s of 1930 for October, 1910			6,060.30
Profit on circulation in excess of 6 per cent on the investment			$1,349.62
Per cent profit			1.336

[1] The expense of $62.50 in the account above was in the Comptroller's reports prior to 1903, divided into the following items: cost of redemption, $45; express charges, $3; plates, $7.50; agents' fees, $7.

It is worth while to note the assumptions made in the above calculation. It is assumed (1) that $100,000 of notes produces a gross income at the same rate as that which would have been realized by the use of $101,005 of lawful money spent in buying bonds; (2) that a bank uses an amount of money for loans equal to the amount of the loans, i. e., $100,000 supports $100,000 in loans; (3) that the investment connected with $100,000 of notes was the $101,005 paid for the government bonds; (4) that the price of government bonds does not change except by the amount of the sinking fund; (5) that the rate of interest is constant.

It has already been pointed out that bank notes are as good as lawful money in so far as they may be passed over the counter instead of lawful money and thus serve to increase reserves. It has also been shown that, considering the approximation to full use, which banks are able to make of funds deposited or originating with them, one is not greatly in error to assume that a bank can make approximately as good use of $100,000 of bank notes as it could make of $100,000 of lawful money. In so far as this is true, the bank, in taking out $100,000 of notes based on United States bonds, sacrifices the use of the $1,005 or the premium on these bonds.

It loses, therefore, only such income as it might have secured through an employment of this amount. The Comptroller's figures are in error only to the extent that he assumes $100,000 to serve the bank in lending only $100,000, whereas it probably serves in making about one third more loans, since it is true that the borrower does not withdraw at once all of the funds borrowed, and that, when a check is drawn, it serves to delay the withdrawal until it is redeposited. If the rate of interest is 6 per cent, the bank loses the gross income on an amount of loans which might be made by the use of $1,005, or possibly 6 per cent on approximately $1,340. If this fact alone were considered, one would be justified in saying that the Comptroller's estimated profits are too high, since the bank lost more income in the sacrifice of the use of a certain amount of money than he assumed it to lose.

The Comptroller's estimated rate of net profits raises the question as to what the investment is. Is it the $1,005, the use of which the bank has sacrified? Or is it the total cost of United States bonds? Since the Comptroller leaves out of the compu-

tation the risk of holding United States bonds, he would have been more logical in assuming that the investment was the $1,005 of premium. There would, in this case, be a petty investment and a small return, although a very high rate of return. The Comptroller, however, figures the return on the amount spent for bonds over what the return would have been if the notes had not been issued. The intention is to show the differential accruing to the bank by reason of the transaction. But it is not appropriate to regard that as a return on the investment in United States bonds.

It is, however, in the fourth assumption involved in the Comptroller's figures that the chief error in calculation of expense is made. The Comptroller's figures were probably made with the expectation that the bankers would make due allowance for the risk involved in the purchase of government bonds. The bankers in the large cities, who are accustomed to shifting security investments, are apparently most affected by this consideration. The name of a government bond carries with it, for the great majority, the idea of security; but the large bankers who are familiar with the fiscal operations of the government and are accustomed to dealing in government bonds have found them an investment of unusual risk. For years there has been much talk of reform in the methods of note issue and this has added to the risk of holding government bonds. If an officer of a large bank is asked why he does not issue more bank notes the reply will usually be that he does not wish to risk such a large per cent of the bank's capital in government bonds. A glance at Plate No. 12 of the *Financial Diagrams* of the National Monetary Commission will show how violently the price of government bonds has fluctuated. When the United States 2s began to take the place of the United States 4s as a basis of circulation in 1900, the latter in two years fell 4½ points. As the supply of Panama 2s became more plentiful, the price of those due in 1930 fell from 108¾ in 1902 to 100⅞ in 1908. The fall of the government 2s in 1908 was partly due to the fact that other bonds began to be accepted in large amounts as security for United States deposits. This low point reached in the early part of 1908 was followed by a rapid increase in bank notes as shown by Table No. 3 and the diagram. The low price of bonds increased the estimated profit resulting from issue and likewise caused an increase in the

ratio of notes to capital for the banks of the country as shown in the diagram. The low price of government bonds has resulted partly from the increased supply but largely from a realization of the risk involved in their purchase. The fiscal policy since and including the administration of Secretary Shaw has also been an important factor in the price fluctuation of government bonds. The significance of this risk is approximately indicated by the increased estimated rate of profit shown in the Comptroller's estimates. It was stated above that the risk was more sensibly felt in the large cities. This is indicated by Plate No. 6 of the *Diagrams* of the National Monetary Commission, where it is shown that the increase in notes since 1904 has been comparatively small in the central reserve cities. The risk involved in the purchase of United States bonds has been compared by Professor W. C. Mitchell with that involved in the purchase of West Shore 4s due in 2361 and of ten other investment bonds. His conclusion was stated as follows: "Instead of providing the stablest of American securities from the investor's point of view, government bonds have proved the least stable among the bonds for which yields have been computed."[3] This expense, however, is one that cannot be computed and can only be indicated, as in the figures of the Comptroller, as resulting in a higher rate of profit necessary to cover the risk involved.

The lower price of government bonds since 1904 has resulted in a large increase in the amount of bank notes and their ratio to capital stock. Since the Comptroller's estimated profits are based on the assumption of a constant rate of interest, they show admirably how the low price of government bonds has stimulated the issue of notes. The table and diagram on the following pages show the movement for the banking system as a whole.

While this table, for which data were taken from the Comptroller's annual reports, does not correctly represent profits from issue, it is useful in showing the relation between the price of government bonds and expansion in bank note currency. As the rate of interest assumed in the above profit calculations was 6 per cent throughout, the estimated profit varies directly with the price of government 2s of 1930.

The following table does not show the reason for the expansion of bank note issues in the country and the reserve city banks

[3] *Journal of Political Economy*, Apr., 1911, p. 285.

TABLE No. 3.

Estimated Profits and Notes Outstanding.

	B Per cent Profit	C Notes secured by U. S. bonds (000,000 omitted)	Notes secured by lawful money (000,000 omitted)	A Ratio of Circulation to Capital
1902 Nov.	.696	$341.7	$43.7	47.1
Dec.	.775	342.1	42.8	....
1903 Jan.	.689	340.6	43.4	....
Feb.	.761	338.7	44.1	45.8
Mch.	.815	338.3	44.2	....
Apr.	.897	347.6	43.6	45.6
May	.935	363.6	42.9	....
June	.921	372.3	41.4	48.3
July	.874	377.6	39.7	....
Aug.	.879	380.1	38.5	....
Sept.	.713	379.5	40.9	49.8
Oct.	.833	380.6	39.0	....
Nov.	.881	383.0	38.0	49.6
Dec.	.925	387.3	37.9	....
1904 Jan.	.954	387.7	39.2	49.7
Feb.	1.016	390.4	40.0	....
Mch.	.989	395.6	39.3	50.3
Apr.	.941	397.8	39.3	....
May	1.013	407.3	38.7	....
June	1.004	412.8	36.5	52.1
July	1.014	415.0	35.2	....
Aug.	1.028	417.4	35.1	....
Sept.	1.013	422.0	34.1	53.4
Oct.	1.009	424.5	32.7	....
Nov.	1.041	427.9	32.7	54
Dec.	1.047	431.8	32.9	....
1905 Jan.	1.035	435.8	31.6	54.6
Feb.	1.000	438.4	30.8	....
Mch.	1.023	444.9	31.1	55.1
Apr.	1.007	449.1	32.1	....
May	1.032	456.2	32.1	56.3
June	1.055	462.7	33.0	....
July	1.021	471.6	32.4	....
Aug.	1.067	478.8	33.4	58.6
Sept.	1.045	481.7	34.7	....
Oct.	1.123	490.0	34.5	....
Nov.	1.156	497.6	35.7	60.1
Dec.	1.159	504.8	36.1	....
1906 Jan.	1.158	506.4	36.9	61.1
Feb.	1.160	509.2	41.6	....
Mch.	1.092	512.2	42.4	....
Apr.	1.093	514.4	42.2	61.7
May	1.126	516.0	43.1	....
June	1.119	517.8	43.2	61.8
July	1.081	516.6	44.9	....
Aug.	1.011	524.4	45.4	....
Sept.	.982	527.8	46.1	62.0
Oct.	1.056	536.9	46.2	....
Nov.		547.0	46.4	63.3
Dec.		549.3	46.9	....
1907 Jan.		549.7	46.5	63.3
Feb.		549.7	46.6	....
Mch.		547.6	49.6	62.2

	B Per cent Profit	C Notes secured by U. S. bonds (000,000 omitted)	Notes secured by lawful money (000,000 omitted)	A Ratio of Circulation to Capital
Apr.		$550.2	$49.7	....
May		553.6	48.3	62.0
June		555.6	48.2	....
July		555.0	48.4	....
Aug.		556.9	47.1	61.6
Sept.		556.1	47.9	....
Oct.	.950	562.7	47.2	....
Nov.	.884	610.1	46.1	....
Dec.	1.002	643.4	46.7	66.7
1908 Jan.	1.024	641.9	53.5	....
Feb.	1.054	632.4	63.2	69.3
Mch.	1.055	628.8	67.6	....
Apr.	1.073	625.4	72.2	....
May	1.079	624.7	73.7	67.3
June	1.059	623.2	75.1	....
July	1.077	625.4	66.7	66.8
Aug.	1.087	625.9	59.3	....
Sept.	1.095	626.9	48.6	66.6
Oct.	1.070	626.8	39.1	....
Nov.	1.084	614.9	52.2	65.0
Dec.	1.098	628.8	48.3	....
1909 Jan.	1.159	630.3	46.3	....
Feb.	1.266	635.6	42.7	66.3
Mch.	1.291	646.1	38.3	....
Apr.	1.276	653.2	34.2	68.1
May	1.366	656.3	31.9	....
June	1.260	659.7	30.2	68.4
July	1.296	667.5	27.8	....
Aug.	1.327	672.3	26.6	....
Sept.	1.327	676.0	26.8	69.6
Oct.	1.334	678.3	25.6	....
Nov.	1.387	681.0	26.4	70.0
Dec.	1.349	683.4	27.0	....
1910 Jan.	1.360	681.3	28.5	69.5
Feb.	1.369	679.4	30.6	....
Mch.	1.342	680.3	31.9	68.8
Apr.	1.363	683.2	30.2	....
May	1.362	682.8	29.5	....
June	1.373	685.5	27.9	68.4
July	1.375	684.5	27.5	....
Aug.	1.336	687.1	30.2	....
Sept.	1.313	688.2	32.1	67.3
Oct.	1.336	691.3	33.5	....

rather than in the central reserve city banks. Table No. 4 will show the comparative ratio of circulation to capital in New York City, the three central reserve cities, other reserve cities, and the country banks.

Outstanding Notes of National Banks with Changes in the Estimated Profits from Issue.

A. Ratio of Bank Notes Outstanding to Capital of National Banks.

B. Comptroller's Estimated Per Cent Profit on Bank Notes.

C. Bank Notes Secured by Bonds in Millions.

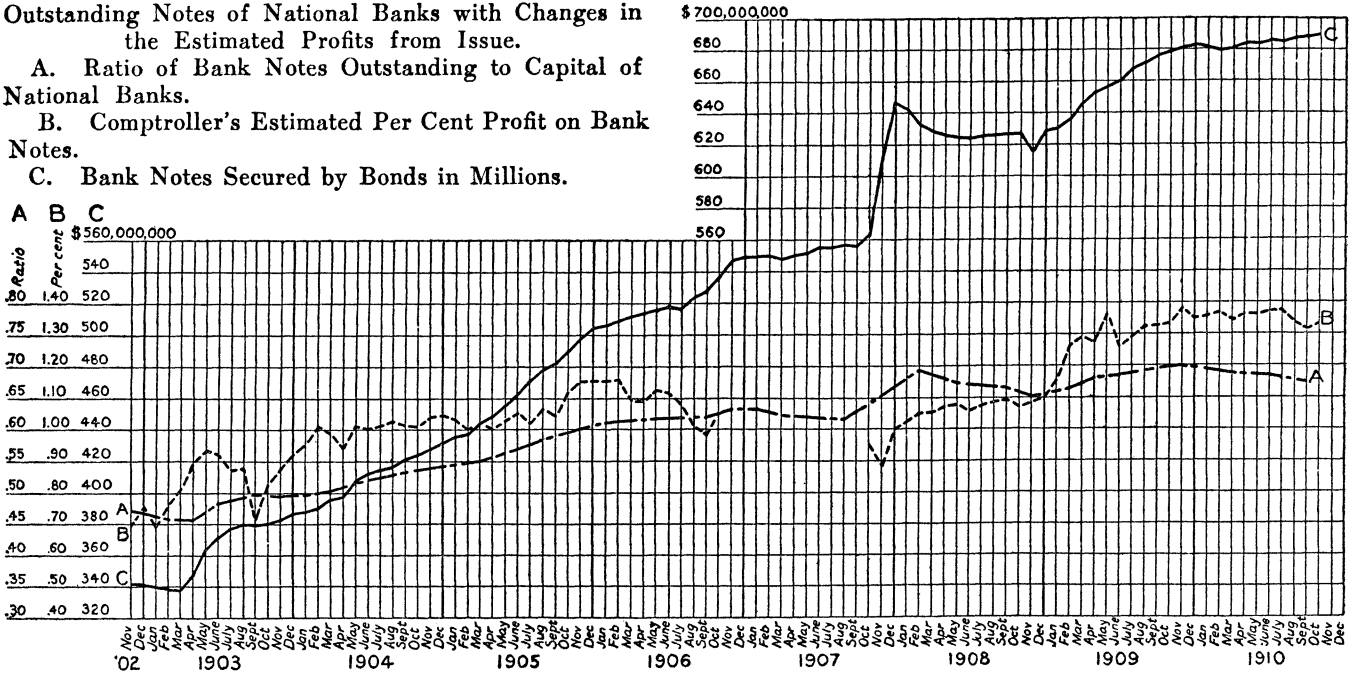

TABLE No. 4.
Ratio of Outstanding Circulation to Capital.

	New York City	New York, Chicago, and St. Louis	Other Reserve Cities	Country Banks
Sept. 6, 1904	36.9	38.0	51.4	59.1
Aug. 25, 1905	50.3	49.5	55.2	62.8
Sept. 4, 1906	43.2	47.8	59.6	66.5
Aug. 22, 1907	44.2	46.7	58.2	66.8
Sept. 23, 1908	49.1	51.6	64.9	71.6
Sept. 1, 1909	46.1	50.8	67.8	75.9
Sept. 1, 1910	38.4	44.8	64.3	75.6

The data are taken from the annual reports of the Comptroller of the Currency.

There are certain facts apparent from these figures which do not signify greatly for the general tendency toward a higher ratio of circulation outside of the great centers. The sudden rise in the ratio of circulation to capital for New York City in 1905 was doubtless due to the fact that the national banks there were the chief beneficiaries of the treasury operations of Secretary Shaw through which municipal bonds were accepted as security for government deposits. It was not good policy to sell, all at once, the government bonds thus released, and consequently New York banks used them temporarily in increasing their circulation. The ordinary circumstances affecting the distribution of note issue were temporarily in abeyance.

If Table No. 4 is compared with Table No. 2, it will be seen that the percentage of bank notes rises in the locality where the excess of available reserves is greatest. Although there is not shown an excess of available reserves for Chicago and St. Louis, an examination of their reports will show they have a larger total of funds due from other banks than has New York. The country bank ordinarily has altogether 8 to 10 per cent of its deposits over its required reserve in its own vault and with its reserve agents. The reserve cities have something like half this excess above their reserve, whereas the central reserve cities, except in very dull times, have a much smaller excess of funds above their reserve requirement. Business is centralized in New York City and our banking system is likewise centralized there through the operation of the reserve provision of the national

banking act. New York City has the facilities, through its relation to speculation, for placing idle funds into use. It also has a close relation to the foreign money markets where it frequently lends freely. As the remoteness from New York City increases, the difficulty in the employment of idle funds increases. Consequently, the national banks in the country do not find it possible to turn the daily surplus in reserves to the loan or investment account. In so far as the country banker has constantly more idle funds, he has a profitable alternative use through his issues of bank notes. Perhaps it would be more nearly right to say that the irregularity of the employment of funds in the country finds its expression in an increase in the deposits with the reserve agent in excess of the amount that can be employed there. As the rate of interest on any funds becomes low, the profits of issue increase. By investing in government bonds and notes and depositing the notes with his correspondent the country banker gets 4 per cent on idle funds. The loss of 2 per cent on the premium is a small subtraction from the gross income. If a country banker counts on having an average of 8 per cent of his deposits in idle funds, it would pay him to take out notes when otherwise it might be unprofitable. That is, bank notes are a good investment for idle funds when 4 per cent may be secured with a negligible loss on premiums. But more important than this consideration is the keener realization by the larger bankers of the risk involved in buying government bonds. The government bond brokers of New York send to the country banker the figures in regard to profits on note issue. He accepts them without suspecting that the rulings of the Secretary of the Treasury or some currency reform may cause a loss on the securities. The figured profits seem small but the country banker deals in small profits and takes them when they are offered. He sees a small profit with practically no risk.

The large banker also uses the argument that he does not wish to have all of his capital invested in United States bonds. In the regular course of business, his investment in securities other than United States bonds materially exceeds the capital stock of the bank. As there is a prejudice in the banking community against excessive investments in securities, the large bankers find the funds regarded as available for security investment employed in the purchase of securities, whose ownership is more significant

for the bank than the ownership of government bonds. Whether this investment takes the form of ownership of the capital stock of a trust company, or the foreclosed collateral securities of defaulted borrowers, or the ownership in securities of some enterprises having a relation to the properties held by the group of capitalists in control of the bank, or whether it be the desire to hold securities from time to time in connection with underwritings, there are opportunities for security investment more attractive than the purchase of United States bonds, considering the limited amount of funds which may be conservatively placed in these mortgage or stock securities. The large bank participates in underwritings and the traffic in securities. When the large central reserve city banks can invest their funds, which they regard as available for security investment, in 5 per cent bonds which they regularly turn over with a differential in addition to the 5 per cent return, United States 2 per cent bonds with the small differential associated with bank notes do not prove attractive.

The bank notes based on United States bonds, like any other notes, have a bearing on the business of other than the issuing banks. For the issuing bank they involve a slight contraction of loanable resources; but in the city from which the bonds are purchased, they involve an increase of deposits or cash resources first by approximately the purchase price of the bonds. If a reserve city national bank should sell the United States bonds to a country bank, the loanable cash resources of the former would be increased by the purchase price of the bonds. Its loan might be increased, after the transaction, by an amount slightly in excess of this amount. The total circulation has been increased by the amount of the note issue. The issuing bank has lost loanable cash resources to the amount of the premium while the reserve city bank has gained loanable cash resources equal to the purchase price of the bonds and therefore equal to the amount of notes plus the premium on the bonds. But the secondary effect on the banking system as a whole, through the redeposit of the increase in total funds, is to increase loanable cash resources by an amount equal to several times the increase. The difficulty is, however, that when bank notes are needed, no bank can afford to take them out because their issue involves a contraction of the lending power of the issuing bank at the same time that it increases the lending power of the central banks. No bank hard

pressed for funds could afford to issue such notes in times of stress if it were required to purchase the bonds upon which they were based.

A glance at Plate No. 6 of the *Financial Diagrams* of the National Monetary Commission, hich shows a large increase of bank notes during the panic of 1907, seems to furnish evidence contradictory to the theory here proposed. The increase in note issues here indicated resulted from the plan pursued by the Treasury in coming to the relief of the money market. United States bonds held to secure United States deposits were released upon condition that they be used to increase the bank note circulation, and the banks so favored were allowed to substitute other securities to secure the e government deposits. Finally, three per cent certificates of indebtedness with circulation privilege were sold to the banks and the purchase money redeposited with them. It was this stimulus which resulted in the sudden increase of bank notes in the reserve and central reserve cities. These causes, however, had been in operation since the fall of 1905 as will be indicated by Plate No. 6 of the *Financial Diagrams*. Secretary Shaw initiated at this time a new interpretation of the federal law formerly supposed to require United States bonds as security for government deposits. His interpretation allowed the use of other than United States bonds as security for deposits. This released some government bonds, and in New York and other large cities there was an immediate response in a larger circulation, as already indicated. The Comptroller, however, has not undertaken to compute the profits of note issues in 1907, and the circumstances of the case do not permit of a very definite analysis. It seems fairly profitable, however, to get 3 per cent on money due for 3 per cent certificates, and at the same time to secure additional note issues equal to the amount of 3 per cent notes so purchased. Some of the increase in bank note circulation in 1907 was based on borrowed bonds. Although rates paid for the use of these securities were not published, the competitive rate would tend to offset the profits to be secured from the circulation. The method is particularly advantageous because notes thus secured increased the lending power of the issuing bank.

The argument here set forth in regard to the profits of issu applies to the national bank notes under the banking and currency laws, which now prevail in this country. The explanation of the

significance of notes issued by a central bank or by such an organization as the proposed Reserve Association of America would require a further analysis, which would unduly lengthen this paper.

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